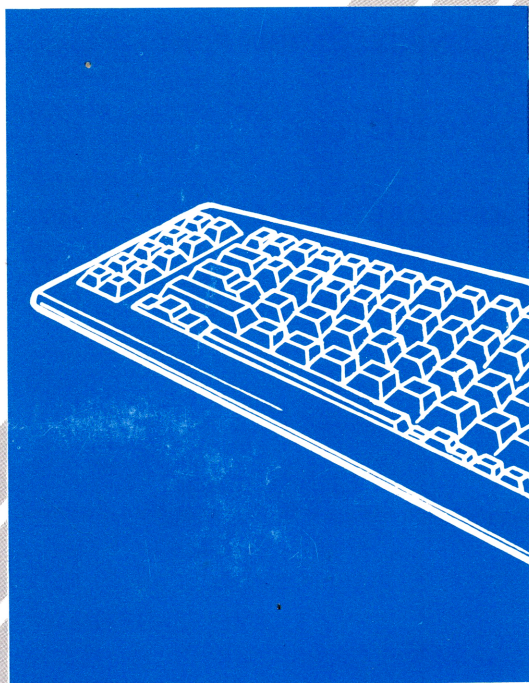


5150C $\frac{XT}{AT}$

MULTI-COMPATIBLE KEYBOARD USER'S MANUAL



**PC/PC-XT
Compatible**

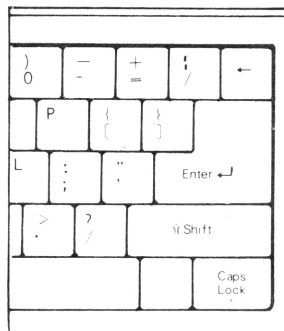
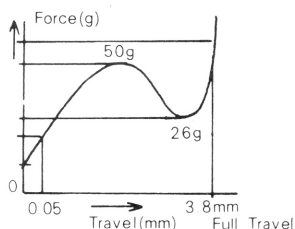
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* IBM is a registered trademark of International Business Machines Corporation.

1. SILENT TACTILE FEEDBACK KEYSWITCH

Friendly positive tactile feedback keyboard similar to the feeling of IBM PC keyboard.

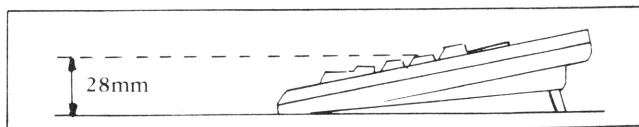


2. ENLARGED “Enter” KEY AND “Shift” KEY

Enter and shift keys in larger strike surface for easier entry and more accurate operation.

3. SUPER SLIM

To meet DIN standard, from tops of home row keys to the desk top, STAFF-K8 low profile keyboard is only 28mm height.



4. IMPROVED COIL CABLE OUTLET

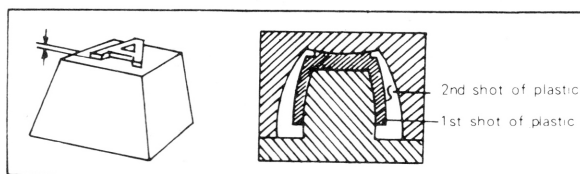
Bi-directional coil cable with non-stopper can be released not only from right side but also from left side and that the keyboard can be put fully close to the computer.

5. FUNCTION DISPLAY OVERLAY

Easy for users to identify functions they defined.

6. DOUBLE SHOT KEYTOP

The best way to make keytop in two colors, this technique is called double-shot molding which provides a permanent smooth legened, and is unable to be erased.



Chapter 1

OVERVIEW

The “Multi-Compatible” Keyboard has eight outstanding features as follows.

1. IBM PC/PCXT plug-compatible.
2. Excellent tactile feeling, mechanical keyswitch.
3. Function-Label indicating definable-functions.
4. Low-profile design, DIN standard.
5. Double-shoot step-sculpture keytops.
6. Improved layout, PC AT keyboard look-alike.
7. Various languages keyboard available: English, German, French, Spanish, Italian, Swedish.
8. Concealed height adjustable tilts (Fig. 1-1).

IBM PCXT

Chapter 2

TECHNICAL INTRODUCTION

The Multi-compatible keyboard interface is defined so that system software has maximum flexibility in defining certain keyboard operations. This is accomplished by having the keyboard return scan codes rather than American Standard Code for Information Interchange (ASCII) codes. In addition, all keys are typematic and generate both a make and a break scan code.

The keyboard I/O driver can define keyboard keys as shift keys or typematic, as required by the application.

The microcomputer in the keyboard performs several functions, including a power-on self-test when requested by the system unit. This test checks the microcomputer ROM, tests memory, and checks for stuck keys. Additional functions are: keyboard scanning, buffering of up to 32 key scan codes, maintaining bidirectional serial communications with the system unit, and executing the hand-shake protocol required by each scan-code transfer.

Chapter 3

KEYBOARD

LAYOUT

The Multi-Compatible™ keyboard has 84 keys arranged in three major groupings. The central portion of the keyboard is a standard typewriter keyboard layout. On the left side are 10 function keys. These keys are user-defined by the software. On the right is a 18-key keypad. These keys are also defined by the software, but have legends for the functions of numeric entry, cursor control, calculator pad, and screen edit.

FUNCTION PLATE INDICATOR APPLICATION

CAPS	NUM	SCROLL
☐ LOCK	☐ LOCK	☐ LOCK

PC/AT MODEL

CAPS	NUM	
☐ LOCK	☐ LOCK	☐ POWER

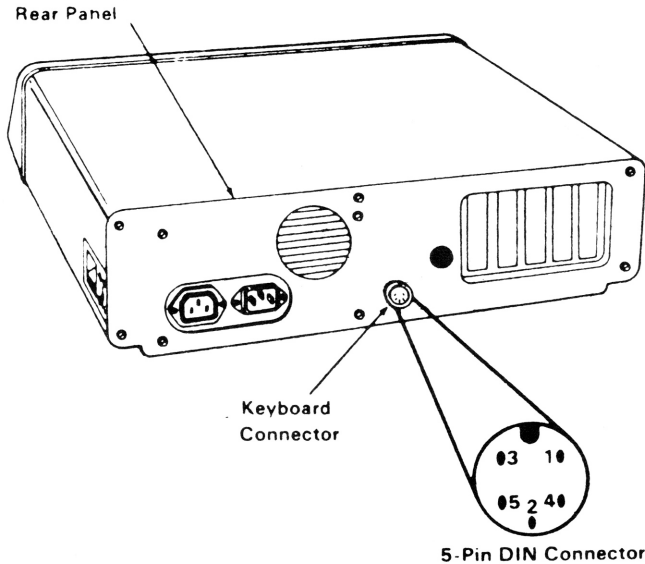
PC/XT MODEL



Keyboard Layout.

Chapter 4

CONNECT TO IBM PCXT



Pin	TTL Signal	Signal Level
1	+Keyboard Clock	+5 VDC
2	-Keyboard Data	+5 VDC
3	-Keyboard Reset (Not used by keyboard)	
Power Supply Voltages		Voltage
4	Ground	0
5	+5 Volts	+5 VDC

Fig. 4-1. Keyboard Interface Connector Specifications.

Chapter 5

KEYCODE TABLE

Key Number	Base Case	Upper Case	Ctrl	Alt
1		~	-i	-1
2	1	!	-1	Note 1
3	2	@	Nul (000) Note 1	Note 1
4	3	#	-1	Note 1
5	4	\$	-1	Note 1
6	5	%	-1	Note 1
7	6	^	RS (030)	Note 1
8	7	&	-1	Note 1
9	8	*	-1	Note 1
10	9	(	-1	Note 1
11	10	)	-1	Note 1
12	-	-	US (031)	Note 1
13	=	+	-1	Note 1
14	\	:	FS (028)	-1
15	Backspace (008)	Backspace (008)	Del (127)	-1
16	→ (009)	← (Note 1)	-1	-1
17	q	Q	DC1 (017)	Note 1
18	w	W	ETB (023)	Note 1
19	e	E	ENQ (005)	Note 1
20	r	R	DC2 (018)	Note 1
21	t	T	DC4 (020)	Note 1
22	y	Y	EM (025)	Note 1
23	u	U	NAK (021)	Note 1
24	i	I	HT (009)	Note 1
25	o	O	SI (015)	Note 1
26	p	P	DLE (016)	Note 1
27	[	{	Esc (027)	-1
28	]	}	GS (029)	-1
30 Ctrl	-1	-1	-1	-1
31	a	A	S0H (001)	Note 1
32	s	S	DC3 (01P)	Note 1
33	d	D	EOT (004)	Note 1
34	f	F	ACK (006)	Note 1
35	g	G	BEL (007)	Note 1
36	h	H	BS (008)	Note 1
37	j	J	LF (010)	Note 1
38	k	K	VT (011)	Note 1
39	l	L	FF (012)	Note 1
40	;	:	-1	-1
41	,	"	-1	-1
43	CR Enter	CR Enter	LF (010)	-1
44 Shift (L)	-1	-1	-1	-1
46	z	Z	SUB (026)	Note 1
47	x	X	CAN (024)	Note 1
48	c	C	EXT (003)	Note 1
49	v	V	SYN (022)	Note 1
50	b	B	STX (002)	Note 1
51	n	N	SO (014)	Note 1
52	m	M	CR (013)	Note 1

Keyboard Encoding(Continued)

Key Number	Base Case	Upper Case	Ctrl	Alt
53	,	<	-1	-1
54	.	>	-1	-1
55	/	?	-1	-1
57 Shift (R)	-1	-1	-1	-1
58 Alt	-1	-1	-1	-1
61	SP	SP	SP	SP
64 Caps Lock	-1	-1	-1	-1
65	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)
66	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)
67	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)
68	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)
69	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)
70	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)
71	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)
72	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)
73	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)
74	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)	Nul (Note 1)
90	Esc	Esc	Esc	-1
95 Num Lock	-1	-1	Pause (Note 2)	-1
100 Scroll Lock	-1	-1	Break (Note 2)	-1

Key Number	Num Lock	Base Case	Alt	Ctrl
91	7	Home (Note 1)	-1	Clear Screen
92	4	← (Note 1)	-1	Reverse Word (Note 1)
93	1	End (Note 1)	-1	Erase to EOL (Note 1)
96	8	↑ (Note 1)	-1	-1
97	5	-1	-1	-1
98	2	↓ (Note 1)	-1	-1
99	0	Ins	-1	-1
101	9	Page Up (Note 1)	-1	Top of Text and Home
102	6	→ (Note 1)	-1	Advance Word (Note 1)
103	3	Page Down (Note 1)	-1	Erase to EOS (Note 1)
104	.	Del (Note 1, 2)	Note 2	Note 2
106	*	*	-1	Nul (Note 1)
107	-	-----	-1	-1
108	+	+	-1	-1
105	Sys Re	No Function		
Notes: 1. Refer to "Extend Codes" in this section 2. Refer to "Special Handling" in this section				

Extended Codes

Second Code	Function
3	Nul Character
15	←
16-25	Alt Q, W, E, R, T, Y, U, I, O, P
30-38	Alt A, S, D, F, G, H, J, K, L
44-50	Alt Z, X, C, V, B, N, M
59-68	F1 to F10 Function Keys Base Case
71	Home
72	↑
73	Page Up and Home Cursor
75	←
77	→
79	End
80	↓
81	Page Down and Home Cursor
82	Ins (Insert)
83	Del (Delete)
84-93	F11 to F20 (Upper Case F1 to F10)
94-103	F21 to F30 (Ctrl F1 to F10)
104-113	F31 to F40 (Alt F1 to F10)
114	Ctrl PrtSc (Start/Stop Echo to Printer)
115	Ctrl ← (Reverse Word)
116	Ctrl → (Advance Word)
117	Ctrl End [Erase to End of Line (EOL)]
118	Ctrl PgDn [Erase to End of Screen (EOS)]
119	Ctrl Home (Clear Screen and Home)
120-131	Alt 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, -, = (Keys 2-13)
132	Ctrl PgUp (Top 25 Lines of Text and Home Cursor)

Chapter 6

KEYBOARD USAGE

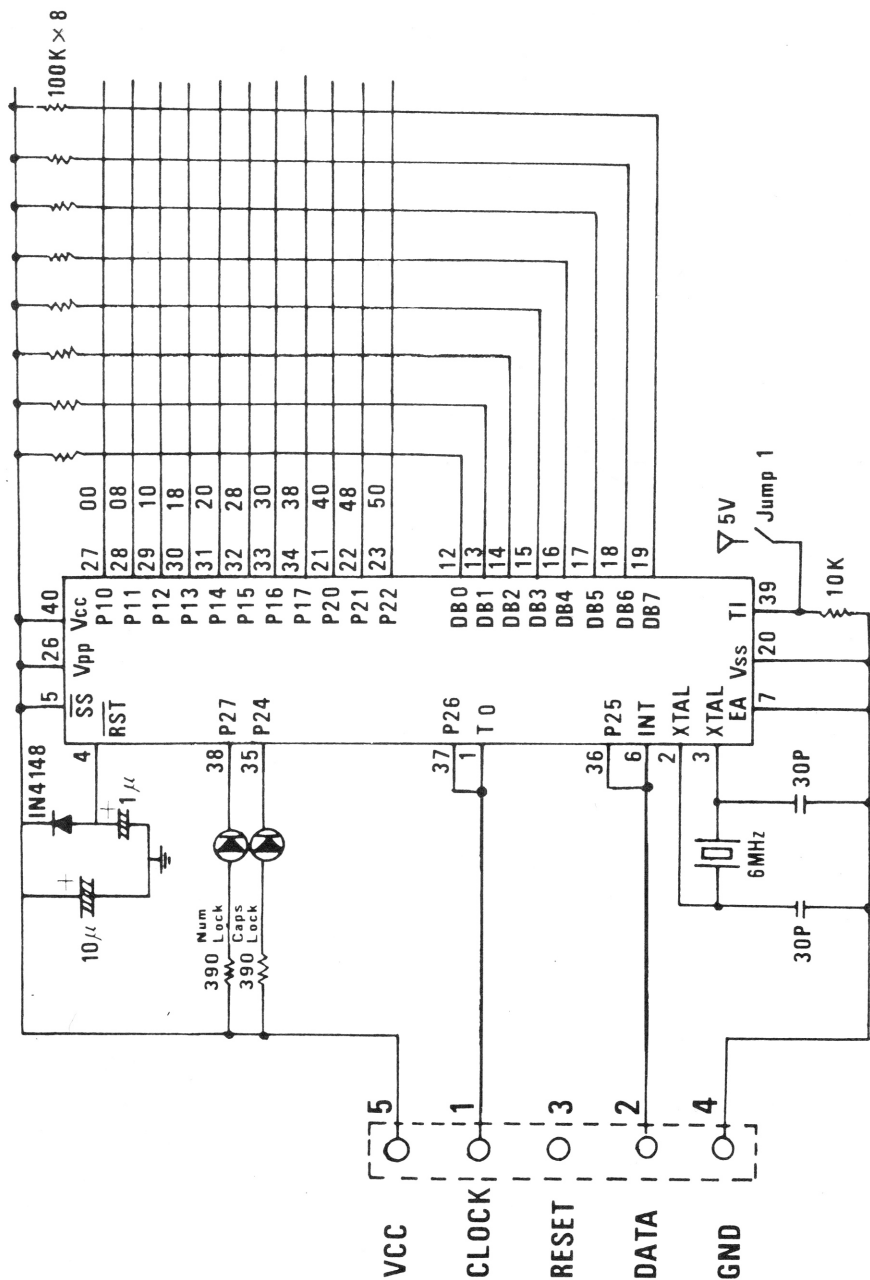
This section is intended to outline a set of guidelines of key usage when performing commonly used functions.

Function	Key(s)	Comment
Home Cursor	Home	Editors; word processors
Return to outermost menu	Home	Menu driven applications
Move cursor up	↑	Full screen editor, word processor
Page up, scroll backwards 25 lines and home	PgUp	Editors; word processors
Move cursor left	← Key 92	Text, command entry
Move cursor right	→	Text, command entry
Scroll to end of text Place cursor at end of line	End	Editors; word processors
Move cursor down	↓	Full screen editor, word processor
Page down, scroll forward 25 lines and home	Pg Dn	Editors; word processors
Start/Stop insert text at cursor, shift text right in buffer	Ins	Text, command entry
Delete character at cursor	Del	Text, command entry
Destructive backspace	← Key 15	Text, command entry
Tab forward	→	Text entry
Tab reverse	←	Text entry
Clear screen and home	Ctrl Home	Command entry
Scroll up	↑	In scroll lock mode
Scroll down	↓	In scroll lock mode
Scroll left	←	In scroll lock mode
Scroll right	→	In scroll lock mode
Delete from cursor to EOL	Ctrl End	Text, command entry
Exit/Escape	Esc	Editor, 1 level of menu, and so on

Keyboard Usage (Continued)

Function	Key(s)	Comment
Start/Stop Echo screen to printer	Ctrl PrtSc (Key 106)	Anytime
Delete from cursor to EOS	Ctrl PgDn	Text, command entry
Advance word	Ctrl →	Text entry
Reverse word	Ctrl ←	Text entry
Window Right	Ctrl →	When text is too wide to fit screen
Window Left	Ctrl ←	When text is too wide to fit screen
Enter insert mode	Ins	Line editor
Exit insert mode	Ins	Line editor
Cancel current line	Esc	Command entry, text entry
Suspend system (pause)	Ctrl Num Lock	Stop list, stop program, and so on Resumes on any key
Break interrupt	Ctrl Break	Interrupt current process
System reset	Alt Ctrl Del	Reboot
Top of document and home cursor	Ctrl PgUp	Editors, word processors
Standard function keys	F1-F10	Primary function keys
Secondary function keys	Shift F1-F10 Ctrl F1-F10 Alt F1-F10	Extra function keys if 10 are not sufficient
Extra function keys	Alt Keys 2-13 (1-9,0,-,.)	Used when templates are put along top of keyboard
Extra function keys	Alt A-Z	Used when function starts with same letter as one of the alpha keys

APPENDIX A



DB7	F9					DB0		P10	
DB6		R	Y	I	P		Alt	B	P11
DB5		% 5	& 7	(9	_ _		Caps Lock	M	P12
DB4							V	> .	P13
					{ }		N	! /	P14
					Space		< ,	Prt Sc *	P15
					4 ←		? /	Q Ins	P16
					6 →		Shift R	Del	P17
					8 ↑		5	C	P20
					—		+	F7	P21
					# 3		×	Z	P22
					F2		F6		
					/ 1		Shift L		
					7 Home		Enter		
					9 Pg up		2 ↓		
					W		3 Pg Dn		
					F3		D		
					← →		F8		
					Num Lock		A		
					Scroll Lock		Space		
					@ 2		4 ←		
					F1		6 →		
					Esc		E		
							F4		
							Q		
							8 ↑		
							—		
							# 3		
							F2		
							/ 1		
							7 Home		
							9 Pg up		
							W		
							F3		
							← →		
							Num Lock		
							Scroll Lock		
							@ 2		
							F1		
							Esc		

